

10429-000.ST25
SEQUENCE LISTING

<110> Novozymes A/S

<120> 10429, Mashing Process and Composition

<130> 10429.204-WO

<160> 20

<170> PatentIn version 3.2

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Gly Thr Trp Gly Ile Asp Tyr Ile Phe Pro Asp Thr Ser Ala Ile Ala
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Thr Leu Val Ser Lys Gly Met Asn Ile Phe Arg Val Gln Phe Met Met
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Glu Arg Leu Val Pro Asn Ser Met Thr Gly Ser Tyr Asp Asp Ala Tyr
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Leu Asn Asn Leu Thr Thr Val Val Asn Ala Ile Ala Ala Ala Gly Val
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His Ala Ile Val Asp Pro His Asn Tyr Gly Arg Tyr Asn Asn Glu Ile
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Ile Ser Ser Thr Ala Asp Phe Gln Thr Phe Trp Gln Asn Leu Ala Gly
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Gln Phe Lys Asp Asn Asp Leu Val Ile Phe Asp Thr Asn Asn Glu Tyr
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Asn Thr Met Asp Gln Thr Leu Val Leu Asp Leu Asn Gln Ala Ala Ile
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Gly	Asp	Phe 35	Thr	Leu	Tyr	Asn	Asp 40	Leu	Trp	Gly	Glu	Ser 45	Ala	Gly	Thr
Gly	Ser 50	Gln	Cys	Thr	Gly	Val 55	Asp	Ser	Tyr	Ser	Gly 60	Asp	Thr	Ile	Ala
Trp 65	His	Thr	Ser	Trp	Ser 70	Trp	Ser	Gly	Gly	Ser 75	Ser	Ser	Val	Lys	Ser 80
Tyr	Val	Asn	Ala	Ala 85	Leu	Thr	Phe	Thr	Pro 90	Thr	Gln	Leu	Asn	Cys 95	Ile
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Ser Ser Lys Tyr Glu Ile Met Val Trp Leu Ala Ala Leu Gly Gly Ala
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Gly Pro Ile Ser Ser Thr Gly Ser Thr Ile Ala Thr Pro Thr Ile Ala
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Gly Val Asn Trp Lys Leu Tyr Ser Gly Pro Asn Gly Asp Thr Thr Val
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Tyr Ser Phe Val Ala Asp Ser Thr Thr Glu Ser Phe Ser Gly Asp Leu
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Asn Asp Phe Phe Thr Tyr Leu Val Asp Asn Glu Gly Val Ser Asp Glu
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Gly Leu Gly Pro Gly Gly Cys Gly Asp Trp Gly Asn Pro Pro Pro Lys
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Asp Val Cys Pro Asp Val Glu Ser Cys Ala Lys Asn Cys Ile Met Glu
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 Gly Met Asn Ser Ala Leu Tyr Leu Ser Glu Met His Pro Thr Gly Ala
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 Asp Ala Gln Cys Phe Val Thr Pro Phe Ile Asn Gly Leu Gly Asn Ile
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 Lys Glu Gly Val Pro Tyr Thr Asn Met Ile Asp Asp Glu Phe Cys Glu
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Cys Thr Tyr Leu Asp Gly Thr Asn Asn Gly Gly Ile Gln Trp Ser Thr
 65 70 75 80

Ala Trp Glu Trp Gln Gly Ala Pro Asp Asn Val Lys Ser Tyr Pro Tyr
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Val Gly Lys Gln Ile Gln Arg Gly Arg Lys Ile Ser Asp Ile Asn Ser
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Met Arg Thr Ser Val Ser Trp Thr Tyr Asp Arg Thr Asp Ile Arg Ala
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Asn Val Ala Tyr Asp Val Phe Thr Ala Arg Asp Pro Asp His Pro Asn
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Trp Gly Gly Asp Tyr Glu Leu Met Ile Trp Leu Ala Arg Tyr Gly Gly
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Ile Tyr Pro Ile Gly Thr Phe His Ser Gln Val Asn Leu Ala Gly Arg
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Phe Leu Pro Pro Ser Gly Asp Ile Arg Asp Phe Ser Cys Asp Ile Lys
 195 200 205

Asp Phe Phe Asn Tyr Leu Glu Arg Asn His Gly Tyr Pro Ala Arg Glu
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Pro Ala Lys Gly Lys Phe Lys Trp Phe Gly Ile Asn Gln Ser Cys Ala
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Glu Phe Gly Lys Gly Glu Tyr Pro Gly Leu Trp Gly Lys His Phe Thr
 100 105 110

Phe Pro Ser Thr Ser Ser Ile Gln Thr His Ile Asn Asp Gly Phe Asn
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Met Phe Arg Val Ala Phe Ser Met Glu Arg Leu Ala Pro Asn Gln Leu
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 Lys Ser Gly Cys Glu Pro Gly Gly Val Ala Tyr Ser Cys Ala Asp Gln
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 Thr Pro Trp Ala Val Asn Asp Asp Phe Ala Leu Gly Phe Ala Ala Thr
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 Ser Ile Ala Gly Ser Asn Glu Ala Gly Trp Cys Cys Ala Cys Tyr Glu
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 Leu Thr Phe Thr Ser Gly Pro Val Ala Gly Lys Lys Met Val Val Gln
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 Cys Asp Arg Phe Pro Asp Ala Leu Lys Pro Gly Cys Tyr Trp Arg Phe
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 Gln Cys Pro Ala Glu Leu Val Ala Arg Thr Gly Cys Arg Arg Asn Asp
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 Asp Gly Asn Phe Pro Ala Val Gln Ile Pro Ser Ser Ser Thr Ser Ser
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 Arg Trp Ala Gln Cys Gly Gly Asn Gly Trp Ser Gly Cys Thr Thr Cys
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 35 40 45

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Asn Thr Ile Asp Thr Leu Ile Ser Lys Gly Met Asn Ile Phe Arg Val
 65 70 75 80

Pro Phe Met Met Glu Arg Leu Val Pro Asn Ser Met Thr Gly Ser Pro
 85 90 95

Asp Pro Asn Tyr Leu Ala Asp Leu Ile Ala Thr Val Asn Ala Ile Thr
 100 105 110

Gln Lys Gly Ala Tyr Ala Val Val Asp Pro His Asn Tyr Gly Arg Tyr
 115 120 125

Tyr Asn Ser Ile Ile Ser Ser Pro Ser Asp Phe Gln Thr Phe Trp Lys
 130 135 140

Thr Val Ala Ser Gln Phe Ala Ser Asn Pro Leu Val Ile Phe Asp Thr
 145 150 155 160

Asn Asn Glu Tyr His Asp Met Asp Gln Thr Leu Val Leu Asn Leu Asn
 165 170 175

Gln Ala Ala Ile Asp Gly Ile Arg Ser Ala Gly Ala Thr Ser Gln Tyr
 180 185 190

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Val Asn Asp Asn Met Lys Ser Leu Thr Asp Pro Ser Asp Lys Ile Ile
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 Gly Gly Ala Asn Asp Val Cys Glu Thr Ala Ile Thr Gly Met Leu Asp
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 Tyr Met Ala Gln Asn Thr Asp Val Trp Thr Gly Ala Ile Trp Trp Ala
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 Gln Tyr Thr Leu Asn Lys Asn Ala Lys Thr Pro Ala Ile Ile Lys Ala
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 Asp Phe Gly Gln Leu Thr Pro Glu Asn Ser Met Lys Trp Asp Ala Thr
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 Glu Pro Asn Arg Gly Gln Phe Ser Phe Ser Gly Ser Asp Tyr Leu Val
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 Asn Phe Ala Gln Ser Asn Gly Lys Leu Ile Arg Gly His Thr Leu Val
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Tyr Lys Gly Lys Val Tyr Ala Trp Asp Val Val Asn Glu Ile Phe Asn
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Glu Asp Gly Ser Leu Cys Gln Ser His Phe Tyr Asn Val Ile Gly Glu
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Asp Tyr Val Arg Ile Ala Phe Glu Thr Ala Arg Ala Val Asp Pro Asn
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Ala Lys Leu Tyr Ile Asn Asp Tyr Asn Leu Asp Ser Ala Ser Tyr Pro
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Lys Leu Thr Gly Leu Val Asn His Val Lys Lys Trp Val Ala Ala Gly
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Lys Glu Val Ala Ile Thr Glu Leu Asp Ile Ala Gly Ala Ser Ser Thr
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Asp Tyr Val Asn Val Val Lys Ala Cys Leu Asn Gln Pro Lys Cys Val
 275 280 285

Gly Ile Thr Val Trp Gly Ser Ser Asp Pro Asp Ser Trp Arg Ser Ser
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Thr Pro Gly Asn Ser Met Lys Trp Asp Ala Thr Glu Pro Ser Gln Gly
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Thr Phe Thr Phe Thr Lys Gly Asp Val Ile Ala Asp Leu Ala Glu Gly
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Asn Gly Gln Tyr Leu Arg Cys His Thr Leu Val Trp Tyr Asn Gln Leu
100 105 110

Pro Ser Trp Val Thr Ser Gly Thr Trp Thr Asn Ala Thr Leu Thr Ala
115 120 125

Ala Leu Lys Asn His Ile Thr Asn Val Val Ser His Tyr Lys Gly Lys
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Cys Leu His Trp Asp Val Val Asn Glu Ala Leu Asn Asp Asp Gly Thr
145 150 155 160

Tyr Arg Thr Asn Ile Phe Tyr Thr Thr Ile Gly Glu Ala Tyr Ile Pro
165 170 175

Ile Ala Phe Ala Ala Ala Ala Ala Asp Pro Asp Ala Lys Leu Phe
180 185 190

Tyr Asn Asp Tyr Asn Leu Glu Tyr Gly Gly Ala Lys Ala Ala Ser Ala
195 200 205

Arg Ala Ile Val Gln Leu Val Lys Asn Ala Gly Ala Lys Ile Asp Gly
210 215 220

Val Gly Leu Gln Ala His Phe Ser Val Gly Thr Val Pro Ser Thr Ser
225 230 235 240

Ser Leu Val Ser Val Leu Gln Ser Phe Thr Ala Leu Gly Val Glu Val
245 250 255

Ala Tyr Thr Glu Ala Asp Val Arg Ile Leu Leu Pro Thr Thr Ala Thr
260 265 270

Thr Leu Ala Gln Gln Ser Ser Asp Phe Gln Ala Leu Val Gln Ser Cys
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Val Gln Thr Thr Gly Cys Val Gly Phe Thr Ile Trp Asp Trp Thr Asp

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Pro Trp Asp Glu Asn Leu Val Lys Lys Pro Ala Tyr Asn Gly Leu Leu
325 330 335

Ala Gly Met Gly Val Thr Val Thr Thr Thr Thr Thr Thr Thr Ala
340 345 350

Thr Ala Thr Gly Lys Thr Thr Thr Thr Thr Thr Gly Ala Thr Ser Thr
355 360 365

Gly Thr Thr Ala Ala His Trp Gly Gln Cys Gly Gly Leu Asn Trp Ser
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Tyr Tyr Ser Gln Cys Leu
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Ser Asn Gly Tyr Tyr Tyr Ser Phe Trp Thr Asp Gly Ala Ser Gly Asp
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Val Glu Tyr Ser Asn Gly Ala Gly Gly Ser Tyr Ser Val Thr Trp Ser
65 70 75 80

Ser Ala Ser Asn Phe Val Gly Gly Lys Gly Trp Asn Pro Gly Ser Ala
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His Asp Ile Thr Tyr Ser Gly Ser Trp Thr Ser Thr Gly Asn Ser Asn
100 105 110

Ser Tyr Leu Ser Val Tyr Gly Trp Thr Thr Gly Pro Leu Val Glu Tyr
115 120 125

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Tyr Ile Leu Glu Asp Tyr Gly Glu Tyr Asn Pro Gly Ser Ala Gly Thr
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Tyr Lys Gly Ser Val Tyr Ser Asp Gly Ser Thr Tyr Asn Ile Tyr Thr
 145 150 155 160

Ala Thr Arg Thr Asn Ala Pro Ser Ile Gln Gly Thr Ala Thr Phe Thr
 165 170 175

Gln Tyr Trp Ser Ile Arg Gln Thr Lys Arg Val Gly Gly Thr Val Thr
 180 185 190

Thr Ala Asn His Phe Asn Ala Trp Ala Lys Leu Gly Met Asn Leu Gly
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Ser Ala Ser Ile Thr Val Ala
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Tyr Gly Gly Tyr Phe Asn Pro Gln Gly Asn Gly Tyr Leu Ala Val Tyr
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Gly Trp Thr Arg Asn Pro Leu Val Glu Tyr Tyr Val Ile Glu Ser Tyr
 115 120 125

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Gly Thr Tyr Asn Pro Gly Ser Gln Ala Gln Tyr Lys Gly Thr Phe Tyr
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Thr Asp Gly Asp Gln Tyr Asp Ile Phe Val Ser Thr Arg Tyr Asn Gln
 145 150 155 160

Pro Ser Ile Asp Gly Thr Arg Thr Phe Gln Gln Tyr Trp Ser Ile Arg
 165 170 175

Lys Asn Lys Arg Val Gly Gly Ser Val Asn Met Gln Asn His Phe Asn
 180 185 190

Ala Trp Gln Gln His Gly Met Pro Leu Gly Gln His Tyr Tyr Gln Val
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Gln Thr His
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His Gln Cys Leu Pro Gly Gly Asn Asn Asn Asn Pro Pro Pro Ala Thr
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Thr Ser Gln Trp Thr Pro Pro Pro Ala Gln Thr Ser Ser Asn Pro Pro
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Pro Thr Gly Gly Gly Gly Gly Asn Thr Leu His Glu Lys Phe Lys Ala
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Arg Gly Lys Gln Tyr Phe Gly Thr Glu Ile Asp His Tyr His Leu Asn
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Asn Asn Gln Leu Met Glu Ile Ala Arg Arg Glu Phe Gly Gln Ile Thr
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Phe Ser Phe Gly Asn Ala Asp Arg Val Val Asp Trp Ala Thr Ser Asn
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Gly Lys Leu Ile Arg Gly His Thr Leu Leu Trp His Ser Gln Leu Pro
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Gln Trp Val Gln Asn Ile Asn Asp Arg Asn Thr Leu Thr Gln Val Ile
 180 185 190

Glu Asn His Val Arg Thr Val Met Thr Arg Tyr Lys Gly Lys Ile Phe
 195 200 205

His Tyr Asp Val Val Asn Glu Ile Leu Asp Glu Asn Gly Gly Leu Arg
 210 215 220

Asn Ser Val Phe Ser Arg Val Leu Gly Glu Asp Phe Val Gly Ile Ala
 225 230 235 240

Phe Arg Ala Ala Arg Ala Ala Asp Pro Asp Ala Lys Leu Tyr Ile Asn
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Asp Tyr Asn Leu Asp Ser Ala Asn Tyr Ala Lys Thr Arg Gly Met Ile
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Asn Leu Val Asn Lys Trp Val Ser Gln Gly Val Pro Ile Asp Gly Ile
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Gly Thr Gln Ala His Leu Ala Gly Pro Gly Gly Trp Asn Pro Ala Ser
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Val Ala Ile Thr Glu Leu Asp Ile Gln Gly Ala Gly Ala Asn Asp Tyr
 325 330 335

Val Thr Val Ala Asn Ala Cys Leu Asn Val Gln Lys Cys Val Gly Ile
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Thr Val Trp Gly Val Ser Asp Arg Asp Thr Trp Arg Ser Asn Glu Asn
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Leu Met Asn Ala Leu
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 Asp Ser Pro Gly Gln Arg Glu Arg Ala Gly Tyr Glu Asp Lys Tyr Ala
 50 55 60
 Gln Tyr Asp Gln Ile Met Trp Lys Ser Gly Glu Phe Gly Leu Thr Thr
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 Pro Thr Asn Gly Gln Lys Trp Leu Phe Thr Glu Pro Glu Arg Gly Val
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 Phe Asn Phe Thr Glu Gly Asp Ile Val Thr Asn Leu Ala Arg Lys His
 100 105 110
 Gly Phe Met Gln Arg Cys His Ala Leu Val Trp His Ser Gln Leu Ala
 115 120 125
 Pro Trp Val Glu Ser Thr Glu Trp Thr Pro Glu Glu Leu Arg Gln Val
 130 135 140
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 145 150 155 160
 Tyr Ala Trp Asp Val Val Asn Glu Ala Leu Asn Glu Asp Gly Thr Tyr
 165 170 175
 Arg Glu Ser Val Phe Tyr Lys Val Leu Gly Glu Asp Tyr Ile Lys Leu
 180 185 190
 Ala Phe Glu Thr Ala Ala Lys Val Asp Pro His Ala Lys Leu Tyr Tyr
 195 200 205
 Asn Asp Tyr Asn Leu Glu Ser Pro Ser Ala Lys Thr Glu Gly Ala Lys
 210 215 220
 Arg Ile Val Lys Met Leu Lys Asp Ala Gly Ile Arg Ile Asp Gly Val
 225 230 235 240
 Gly Leu Gln Ala His Leu Val Ala Glu Ser His Pro Thr Leu Asp Glu

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Arg Asn Pro Leu Ile Glu Tyr Tyr Val Gln Glu Tyr Thr Ser Asn Gly
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Ala Gly Ser Ala Gln Gly Glu Lys Leu Gly Thr Val Glu Ser Asp Gly
 130 135 140

Gly Thr Tyr Glu Ile Trp Arg His Gln Gln Val Asn Gln Pro Ser Ile
 145 150 155 160

Glu Gly Thr Ser Thr Phe Trp Gln Tyr Ile Ser Asn Arg Val Ser Gly
 165 170 175

Gln Arg Pro Asn Gly Gly Thr Val Thr Leu Ala Asn His Phe Ala Ala
 180 185 190

Trp Gln Lys Leu Gly Leu Asn Leu Gly Gln His Asp Tyr Gln Val Leu
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Ser Gly
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Thr Thr Pro Asn Ser Glu Gly Trp His Asp Gly Tyr Tyr Tyr Ser Trp
 35 40 45

Trp Ser Asp Gly Gly Ala Gln Ala Thr Tyr Thr Asn Leu Glu Gly Gly
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Thr Tyr Glu Ile Ser Trp Gly Asp Gly Gly Asn Leu Val Gly Gly Lys
 65 70 75 80

Gly Trp Asn Pro Gly Leu Asn Ala Arg Ala Ile His Phe Glu Gly Val
 85 90 95

Tyr Gln Pro Asn Gly Asn Ser Tyr Leu Ala Val Tyr Gly Trp Thr Arg
 100 105 110

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Asn Pro Leu Val Glu Tyr Tyr Ile Val Glu Asn Phe Gly Thr Tyr Asp
 115 120 125

Pro Ser Ser Gly Ala Thr Asp Leu Gly Thr Val Glu Cys Asp Gly Ser
 130 135 140

Ile Tyr Arg Leu Gly Lys Thr Thr Arg Val Asn Ala Pro Ser Ile Asp
 145 150 155 160

Gly Thr Gln Thr Phe Asp Gln Tyr Trp Ser Val Arg Gln Asp Lys Arg
 165 170 175

Thr Ser Gly Thr Val Gln Thr Gly Cys His Phe Asp Ala Trp Ala Arg
 180 185 190

Ala Gly Leu Asn Val Asn Gly Asp His Tyr Tyr Gln Ile Val Ala Thr
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Glu Gly Tyr Phe Ser Ser Gly Tyr Ala Arg Ile Thr Val Ala Asp Val
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 35 40 45

Gln Cys Thr Thr Val Asn Ser Ala Ser Ser Ala Gly Thr Ser Trp Ser
 50 55 60

Thr Lys Trp Asn Trp Ser Gly Gly Glu Asn Ser Val Lys Ser Tyr Ala
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Asn Ser Gly Leu Ser Phe Asn Lys Lys Leu Val Ser Gln Ile Ser Arg
 85 90 95

Ile Pro Thr Ala Ala Gln Trp Ser Tyr Asp Asn Thr Gly Ile Arg Ala
 100 105 110

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Asp Val Ala Tyr Asp Leu Phe Thr Ala Ala Asp Ile Asn His Val Thr
 115 120 125

Trp Ser Gly Asp Tyr Glu Leu Met Ile Trp Leu Ala Arg Tyr Gly Gly
 130 135 140

Val Gln Pro Leu Gly Ser Lys Ile Ala Thr Ala Thr Val Glu Gly Gln
 145 150 155 160

Thr Trp Glu Leu Trp Tyr Gly Val Asn Gly Ala Gln Lys Thr Tyr Ser
 165 170 175

Phe Val Ala Pro Thr Pro Ile Thr Ser Phe Gln Gly Asp Val Asn Asp
 180 185 190

Phe Phe Lys Tyr Leu Thr Gln Asn His Gly Phe Pro Ala Ser Ser Gln
 195 200 205

Tyr Leu Ile Thr Leu Gln Phe Gly Thr Glu Pro Phe Thr Gly Gly Pro
 210 215 220

Ala Thr Leu Thr Val Ser Asp Trp Ser Ala Ser Val Gln
 225 230 235

<210> 17
 <211> 347
 <212> PRT
 <213> T. reesei

<220>
 <221> PEPTIDE
 <222> (1)..(347)

<400> 17

Met Lys Ala Asn Val Ile Leu Cys Leu Leu Ala Pro Leu Val Ala Ala
 1 5 10 15

Leu Pro Thr Glu Thr Ile His Leu Asp Pro Glu Leu Ala Ala Leu Arg
 20 25 30

Ala Asn Leu Thr Glu Arg Thr Ala Asp Leu Trp Asp Arg Gln Ala Ser
 35 40 45

Gln Ser Ile Asp Gln Leu Ile Lys Arg Lys Gly Lys Leu Tyr Phe Gly
 50 55 60

Thr Ala Thr Asp Arg Gly Leu Leu Gln Arg Glu Lys Asn Ala Ala Ile
 65 70 75 80

Ile Gln Ala Asp Leu Gly Gln Val Thr Pro Glu Asn Ser Met Lys Trp
 85 90 95

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Gln Ser Leu Glu Asn Asn Gln Gly Gln Leu Asn Trp Gly Asp Ala Asp
100 105 110

Tyr Leu Val Asn Phe Ala Gln Gln Asn Gly Lys Ser Ile Arg Gly His
115 120 125

Thr Leu Ile Trp His Ser Gln Leu Pro Ala Trp Val Asn Asn Ile Asn
130 135 140

Asn Ala Asp Thr Leu Arg Gln Val Ile Arg Thr His Val Ser Thr Val
145 150 155 160

Val Gly Arg Tyr Lys Gly Lys Ile Arg Ala Trp Asp Val Val Asn Glu
165 170 175

Ile Phe Asn Glu Asp Gly Thr Leu Arg Ser Ser Val Phe Ser Arg Leu
180 185 190

Leu Gly Glu Glu Phe Val Ser Ile Ala Phe Arg Ala Ala Arg Asp Ala
195 200 205

Asp Pro Ser Ala Arg Leu Tyr Ile Asn Asp Tyr Asn Leu Asp Arg Ala
210 215 220

Asn Tyr Gly Lys Val Asn Gly Leu Lys Thr Tyr Val Ser Lys Trp Ile
225 230 235 240

Ser Gln Gly Val Pro Ile Asp Gly Ile Gly Ser Gln Ser His Leu Ser
245 250 255

Gly Gly Gly Gly Ser Gly Thr Leu Gly Ala Leu Gln Gln Leu Ala Thr
260 265 270

Val Pro Val Thr Glu Leu Ala Ile Thr Glu Leu Asp Ile Gln Gly Ala
275 280 285

Pro Thr Thr Asp Tyr Thr Gln Val Val Gln Ala Cys Leu Ser Val Ser
290 295 300

Lys Cys Val Gly Ile Thr Val Trp Gly Ile Ser Asp Lys Asp Ser Trp
305 310 315 320

Arg Ala Ser Thr Asn Pro Leu Leu Phe Asp Ala Asn Phe Asn Pro Lys
325 330 335

Pro Ala Tyr Asn Ser Ile Val Gly Ile Leu Gln
340 345

<210> 18
<211> 419
<212> PRT
<213> T.reesei

10429-000.ST25

<220>

<221> PEPTIDE

<222> (1)..(419)

<400> 18

Met Asn Lys Pro Met Ser Ser Leu Leu Leu Ala Ala Thr Leu Leu Ala
 1 5 10 15

Gly Gly Ser Ile Ala Gln Gln Thr Val Trp Gly Gln Cys Gly Gly Gln
 20 25 30

Gly Trp Ser Gly Pro Thr Ser Cys Val Ala Gly Ser Ala Cys Ser Thr
 35 40 45

Leu Asn Pro Tyr Tyr Ala Gln Cys Ile Pro Gly Ala Thr Thr Met Ser
 50 55 60

Thr Thr Thr Lys Pro Thr Ser Val Ser Ala Ser Thr Thr Arg Ala Ser
 65 70 75 80

Ala Thr Ser Ser Ala Thr Pro Pro Pro Ser Ser Gly Leu Thr Arg Phe
 85 90 95

Ala Gly Val Asn Ile Ala Gly Phe Asp Phe Gly Cys Gly Thr Asp Gly
 100 105 110

Thr Cys Val Thr Ser Lys Val Tyr Pro Pro Leu Lys Asn Tyr Ala Gly
 115 120 125

Thr Asn Asn Tyr Pro Asp Gly Val Gly Gln Met Gln His Phe Val Asn
 130 135 140

Asp Asp Lys Leu Thr Ile Phe Arg Leu Pro Val Gly Trp Gln Tyr Leu
 145 150 155 160

Val Asn Asn Asn Leu Gly Gly Thr Leu Asp Ser Asn Asn Phe Gly Lys
 165 170 175

Tyr Asp Gln Leu Val Gln Ala Cys Leu Ser Leu Gly Val Tyr Cys Ile
 180 185 190

Val Asp Ile His Asn Tyr Ala Arg Trp Asn Gly Gly Ile Ile Gly Gln
 195 200 205

Gly Gly Pro Thr Asn Asp Gln Phe Thr Ser Leu Trp Ser Gln Leu Ala
 210 215 220

Gln Lys Tyr Ala Ser Gln Ser Lys Val Trp Phe Gly Ile Met Asn Glu
 225 230 235 240

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Pro His Asp Val Asn Ile Asn Thr Trp Ala Thr Thr Val Gln Ala Val
 245 250 255

Val Thr Ala Ile Arg Asn Ala Gly Ala Thr Ser Gln Phe Ile Ser Leu
 260 265 270

Pro Gly Asn Asp Trp Gln Ser Ala Gly Ala Phe Ile Ser Asp Gly Ser
 275 280 285

Ala Ala Ala Leu Ser Gln Val Lys Asn Pro Asp Gly Ser Thr Pro Asn
 290 295 300

Leu Ile Phe Asp Leu His Lys Tyr Leu Asp Ser Asp Asn Ser Gly Thr
 305 310 315 320

His Ala Asp Cys Val Thr Asn Asn Val Asn Asp Ala Phe Ser Pro Val
 325 330 335

Ala Thr Trp Leu Arg Gln Asn Asn Arg Gln Ala Ile Leu Thr Glu Thr
 340 345 350

Gly Gly Gly Asn Thr Gln Ser Cys Ile Gln Tyr Leu Cys Gln Gln Phe
 355 360 365

Gln Tyr Ile Asn Gln Asn Ser Asp Val Tyr Leu Gly Tyr Val Gly Trp
 370 375 380

Gly Ala Gly Ser Phe Asp Ser Thr Tyr Ile Leu Thr Glu Thr Pro Thr
 385 390 395 400

Gly Ser Gly Ser Ser Trp Thr Asp Thr Ser Leu Val Ser Ser Cys Ile
 405 410 415

Ser Arg Lys

<210> 19
 <211> 459
 <212> PRT
 <213> T.viride

<220>
 <221> PEPTIDE
 <222> (1)..(459)

<400> 19

Met Ala Pro Ser Val Thr Leu Pro Leu Thr Thr Ala Ile Leu Ala Ile
 1 5 10 15

Ala Arg Leu Val Ala Ala Gln Gln Pro Gly Thr Ser Thr Pro Glu Val
 20 25 30

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His Pro Lys₃₅ Leu Thr Thr Tyr Lys₄₀ Cys Thr Lys Ser Gly₄₅ Gly Cys Val

Ala Gln₅₀ Asp Thr Ser Val Val₅₅ Leu Asp Trp Asn Tyr₆₀ Arg Trp Met His

Asp Ala Asn Tyr Asn Ser₇₀ Cys Thr Val Asn Gly₇₅ Gly Val Asn Thr Thr₈₀

Leu Cys Pro Asp Glu₈₅ Ala Thr Cys Gly Lys₉₀ Asn Cys Phe Ile Glu₉₅ Gly

Val Asp Tyr Ala₁₀₀ Ala Ser Gly Val Thr₁₀₅ Thr Ser Gly Ser Ser₁₁₀ Leu Thr

Met Asn Gln₁₁₅ Tyr Met Pro Ser Ser₁₂₀ Ser Gly Gly Tyr Ser₁₂₅ Ser Val Ser

Pro Arg₁₃₀ Leu Tyr Leu Leu Asp₁₃₅ Ser Asp Gly Glu Tyr₁₄₀ Val Met Leu Lys

Leu Asn Gly Gln Glu Leu₁₅₀ Ser Phe Asp Val Asp₁₅₅ Leu Ser Ala Leu Pro₁₆₀

Cys Gly Glu Asn Gly₁₆₅ Ser Leu Tyr Leu Ser₁₇₀ Gln Met Asp Glu Asn₁₇₅ Gly

Gly Ala Asn Gln₁₈₀ Tyr Asn Thr Ala Gly₁₈₅ Ala Asn Tyr Gly Ser₁₉₀ Gly Tyr

Cys Asp Ala₁₉₅ Gln Cys Pro Val Gln₂₀₀ Thr Trp Arg Asn Gly₂₀₅ Thr Leu Asn

Thr Ser₂₁₀ His Gln Gly Phe Cys₂₁₅ Cys Asn Glu Met Asp₂₂₀ Ile Leu Glu Gly

Asn Ser Arg Ala Asn Ala₂₃₀ Leu Thr Pro His Ser₂₃₅ Cys Thr Ala Thr Ala₂₄₀

Cys Asp Ser Ala Gly₂₄₅ Cys Gly Phe Asn Pro₂₅₀ Tyr Gly Ser Gly Tyr₂₅₅ Lys

Ser Tyr Tyr Gly₂₆₀ Pro Gly Asp Thr Val₂₆₅ Asp Thr Ser Lys Thr₂₇₀ Phe Thr

Ile Ile Thr₂₇₅ Gln Phe Asn Thr Asp₂₈₀ Asn Gly Ser Pro Ser₂₈₅ Gly Asn Leu

Val Gly₂₉₀ Ile Thr Arg Lys Tyr₂₉₅ Gln Gln Asn Gly Val₃₀₀ Asp Ile Pro Ser

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Ala Gln Pro Gly Gly Asp Thr Ile Ser Ser Cys Pro Ser Ala Ser Ala
 305 310 315 320

Tyr Gly Gly Leu Ala Thr Met Gly Lys Ala Leu Ser Ser Gly Met Val
 325 330 335

Leu Val Phe Ser Ile Trp Asn Asp Asn Ser Gln Tyr Met Asn Trp Leu
 340 345 350

Asp Ser Gly Asn Ala Gly Pro Cys Ser Ser Thr Glu Gly Asn Pro Ser
 355 360 365

Asn Ile Leu Ala Asn Asn Pro Asn Thr His Val Val Phe Ser Asn Ile
 370 375 380

Arg Trp Gly Asp Ile Gly Ser Thr Thr Asn Ser Thr Ala Pro Pro Pro
 385 390 395 400

Pro Pro Ala Ser Ser Thr Thr Phe Ser Thr Thr Arg Arg Ser Ser Thr
 405 410 415

Thr Ser Ser Ser Pro Ser Cys Thr Gln Thr His Trp Gly Gln Cys Gly
 420 425 430

Gly Ile Gly Tyr Ser Gly Cys Lys Thr Cys Thr Ser Gly Thr Thr Cys
 435 440 445

Gln Tyr Ser Asn Asp Tyr Tyr Ser Gln Cys Leu
 450 455

<210> 20
 <211> 232
 <212> PRT
 <213> T.reesei

<220>
 <221> PEPTIDE
 <222> (1)..(232)

<400> 20

Met Lys Phe Leu Gln Val Leu Pro Ala Leu Ile Pro Ala Ala Leu Ala
 1 5 10 15

Gln Thr Ser Cys Asp Gln Trp Ala Thr Phe Thr Gly Asn Gly Tyr Thr
 20 25 30

Val Ser Asn Asn Leu Trp Gly Ala Ser Ala Gly Ser Gly Phe Gly Cys
 35 40 45

Val Thr Ala Val Ser Leu Ser Gly Gly Ala His Ala Asp Trp Gln Trp
 50 55 60

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Ser Gly Gly Gln Asn Asn Val Lys Ser Tyr Gln Asn Ser Gln Ile Ala
 65 70 75 80

Ile Pro Gln Lys Arg Thr Val Asn Ser Ile Ser Ser Met Pro Thr Thr
 85 90 95

Ala Ser Trp Ser Tyr Ser Gly Ser Asn Ile Arg Ala Asn Val Ala Tyr
 100 105 110

Asp Leu Phe Thr Ala Ala Asn Pro Asn His Val Thr Tyr Ser Gly Asp
 115 120 125

Tyr Glu Leu Met Ile Trp Leu Gly Lys Tyr Gly Asp Ile Gly Pro Ile
 130 135 140

Gly Ser Ser Gln Gly Thr Val Asn Val Gly Gly Gln Ser Trp Thr Leu
 145 150 155 160

Tyr Tyr Gly Tyr Asn Gly Ala Met Gln Val Tyr Ser Phe Val Ala Gln
 165 170 175

Thr Asn Thr Thr Asn Tyr Ser Gly Asp Val Lys Asn Phe Phe Asn Tyr
 180 185 190

Leu Arg Asp Asn Lys Gly Tyr Asn Ala Ala Gly Gln Tyr Val Leu Ser
 195 200 205

Tyr Gln Phe Gly Thr Glu Pro Phe Thr Gly Ser Gly Thr Leu Asn Val
 210 215 220

Ala Ser Trp Thr Ala Ser Ile Asn
 225 230